



NAME OF LABORATORY: Advanced Imaging Lab

PI: Dr. Dafna Ben Bashat PhD

Director of Department: Prof. Talma Hendler MD, PhD

Research Objectives: To characterize the brain tissue and the cerebral-vascular system using multi-parametric advanced MR methods with the goal of improving identification, diagnosis and therapy response assessment in various brain pathologies.

Main Research topics:

- Development and implementation of advanced methods for MRI data acquisition and using advanced computational tools for innovative data analysis and quantification parameters of MRI for clinical applications, with an emphasis on vascular methods.
- Tissue identification, classification and quantification in patients with brain tumors. To date, the ability to assess therapy response and prognosis in patients with brain tumors are limited and mainly based on subjective, qualitative assessments. Advanced imaging methods (both acquisition and analysis), provide multiple parameters that indirectly detect structural and functional properties of the tissue. Together with advanced algorithms for data sorting, we can improve our ability for diagnosis and follow-up assessment of patients with brain tumors and improve our understanding of pathological processes
- Monitoring and evaluation of brain development in fetuses, infants and children. Current techniques allow evaluation of brain structure, function and metabolic changes. Using these methods, and the development and application of innovative methods, enables us to answer important clinical questions and facilitates differential diagnosis, prediction and decisions about early intervention and treatment.

Staff: Dr. Dafna Ben Bashat, Dr. Moran Artzi, Dr. Gilad Liberman, Dr. Maya Weinstein, Dr. Efrat Kliper, Keren Rotker, Oren Geri, Dafna Link-Sourani, Faina Vitinsein, Tuvia Genut.

Active Grants: Gulston Foundation

Collaborations:

- Tel Aviv Sourasky Medical Center – departments of: Radiology, Neuro-Oncology, Neuro-surgery, Neurology, Gynecology and obstetrics, Neonatology.
- Tel Aviv University – Engineering, chemistry and Sagol school of Neuroscience; The Hebrew University – The center of Bioengineering; Technion – Electric Engineering and Faculty of Medicine;
- Children's Hospital of Eastern Ontario, Canada - Radiology Department; Oxford Brookes University, UK - Rehabilitation; Henry Ford Health System, USA, Neurology

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